

205
Begin

REEL

535

SOBOLEV, YA.P.

6.9460
9.9869

20691
S/120/61/000/001/029/062
E194/E184

AUTHORS: Likhter, Ya.I., Prozumenshchikov, S.M., and
Sobolev, Ya.P.

TITLE: A Spectro-Analyser for Signals of Variable Frequency

PERIODICAL: Priory i tekhnika eksperimenta, 1961, No.1, pp.96-98
(+ 1 plate)

TEXT: In analysing electro-magnetic signals of so-called
whistling atmospherics, which are of variable voltage and of
frequency which changes comparatively slowly (in 1-2 seconds the
frequency alters from 20 kc/s to 400 c/s). The principal
interest consists in establishing the relationship between the
instantaneous frequency of the signal and the time. Theoretical
considerations have shown that the instantaneous value of the
frequency f alters with time as follows:

$$f^{-\frac{1}{2}} = t/D \quad (1)$$

where D is a constant term, the dispersion, and t is reckoned
from some initial instant. The constant D depends on the

Card 1/3

20691

S/120/61/000/001/029/062
E194/E184

4

A Spectro-Analyser for Signals of Variable Frequency

properties of the medium in which the signal is propagated and on the geometric latitude of the observation point. The instrument that was developed was based on a low frequency spectro-analyser type ACH-1 (ASNChKh-1). The whistling atmospherics were recorded on a tape-recorder ring of magnetic tape. Thus a periodically repeating signal is provided for analysis. Modifications to the low frequency spectro-analyser are described. The scan is triggered by a light-beam passing through the magnetic tape at a place where the coating has been removed. Whilst the instrument is operating a scan of fifty horizontal lines appears on the cathode ray tube. The horizontal scan is the time axis and the vertical the frequency axis. Each line of the scan corresponds to adjustment of the spectrum analyser to a definite frequency and if this frequency appears at any instant of time a luminous spot appears at the corresponding place of the scan. At the next turn of the belt the analyser is tuned to a different frequency and the beam passes on to the next line of the scan showing another luminous point, and so on. A time scale is provided at intervals

Card 2/3

20691

S/120/61/000/001/029/062

E194/E184

A Spectro-Analyser for Signals of Variable Frequency

of 0.1 sec. The instrument has four frequency ranges, namely 0-4, 0-12, 0-6 and 0.20 kc/s, and correspondingly different values of transmission bandwidth of 100, 200, 300 and 400 c/s. The instrument can use magnetic tape rings of various lengths with recording times from 1.5 to 2.75 seconds. Records of a typical whistling atmospheric are shown. Determination of the dispersion is facilitated by plotting in non-linear coordinates in which Eq. (1) corresponds to straight lines at a slope of $1/D$. The instrument makes this possible by providing a non-linear potentiometer and when this is used the analyser generator frequency alters according to a law of $\sim f^{-1}$ whilst the vertical scan is linear as before. Other laws can also be obtained. There are 2 figures and 1 English reference.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, the Ionosphere and Radio-wave Propagation, AS USSR)
Card 3/3
SUBMITTED: February 25, 1960

3.1820
4.9869

· 14532
S/831/62/000/010/013/013
E192/E382

AUTHOR: Sobolev, Ya.P.

TITLE: Equipment for recording and analyzing atmospheric whistlers

SOURCE: Ionosfernyye issledovaniya.. Sbornik statey, no. 10, V razdel programmy MGG (ionosfera) Mezhdov. geofiz. kom. AN SSSR. Moscow, Izd-vo AN SSSR, 1962. 116 - 120.

TEXT: The equipment described was employed by IZMIRAN during the IGY for recording and spectral analysis of whistlers. It consists of a vertical antenna, 13 m high, an antenna-amplifier and a magnetic tape-recorder, type 193-15 (MEZ-15); the antenna and its amplifier are usually situated 75 m from the laboratory. The amplifier (Fig. 1) employs a cascade input stage to reduce its noise and increase its sensitivity. A circuit tuned to the frequency of the most strongly interfering station is connected in the negative feedback path of the input stage. The output cathode follower (the last tube) is preceded by a low-pass filter of about 20 kc/s bandwidth. The signal from the amplifier is applied to the magnetic tape-recorder by a coaxial cable, the recording tape

Card 1/3

Equipment for recording

S/831/62/000/010/015/015
E192/E382

moving at 770 mm/sec. Signals up to 18 kc/s can be recorded and the sensitivity of the equipment at 5 kc/s is 10 μ V/m. However, since the signal is then subjected to spectral analysis by a narrow-bandwidth filter, the sensitivity can be increased to 1.5 μ V/m. The spectral analyser is based on the instrument, type ACH4X-1 (ASNCHKH-1), which is slightly modified. The signal to be analyzed is recorded on a ring of magnetic tape and is periodically reproduced. The various frequency components of the signal are successively converted to 3 kc/s by a frequency-modulated local oscillator. The signal component thus obtained is applied to the modulator of a cathode-ray tube. The equipment can be used to determine the presence of industrial interference Q, atmospheric noise N, hissing noise H, dawn-chorus noise DC, long whistlers Wh I, short-duration whistlers Wh II and the r.m.s. value of the noise. The results of measurements are recorded in a specially constructed table. There are 3 figures and 1 table. ✓

Card 2/3

SOBOLEV, Ye. A.

Knit Goods.

Specialization of tricot enterprises., Leg. prom., no. 2, 1952.

^

Monthly List of Russian Accessions, Library of Congress, March 1952. UNCLASSIFIED.

MALKIN, Ya.Z.; SMIRNOV, M.P.; SERGIYENKO, V.Ya.; KOZHEVNIKOVA, G.I.;
KALNIN, Ye.I.; TARKHOV, N.G.; Prinimali uchastiye; MURSAITOV, Kh.I.;
ABDUGAPAROV, Sh.I.; BOVGUTA, I.D.; TKACHEV, S.P.; FILATOV, N.V.;
SVISTEL'NIKOV, A.M.; PRACHEV, V.N.; SHEYMAN, V.I.; ANTROPOV, A.D.;
SOBOLEV, Ye.D.; POPOVA, N.T.

Industrial testing of a new continuous method of copper removal
from crude lead. TSvet. met. 34 no. 15-22 Mr '61. (MIRA 14:3)

1. Eksperimental'nyy tsekh Chimkentskogo svintsovogo zavoda (for
Mursaitov, Abdugaparov, Bovguta, Tkacher, Filatov, Svistel'nikov,
Prachev, Sheyman, Antropov, Sobolev, Popova).
(Lead--Metallurgy) (Copper)

TUMANOV, G.V., podpolkovnik meditsinskoy sluzhby; KATERINICH, N.T.,
podpolkovnik meditsinskoy sluzhby, kand.med.nauk; BAKANIDZE, I.G.,
podpolkovnik meditsinskoy sluzhby; SOBOLEV, Ye.I., podpolkovnik
meditsinskoy sluzhby; LOMTEVA, ye.V.

Treatment of acute radiation sickness with homoplastic bone
marrow. Voen.med.zhur. no.9:21-22 S '61. (MIRA 15:10)
(RADIATION SICKNESS) (MARROW--TRANSPLANTATION)

KATERINICH, N.T., podpolkovnik meditsinskoy sluzhby, kand.med.nauk;
SOBOLEV, Ye.I., podpolkovnik meditsinskoy sluzhby

Possible sources of the bacterial contamination of wounds under
the conditions of a therapeutic institution. Voen.-med.zhur.
no.9:78-79 S '61. (MIRA 15:10)

(HOSPITALS--HYGIENE)

30222

S/081/61/000/019/067/085

B117/B110

11.0130

AUTHORS: Rubinshteyn, I. A., Losikov, B. V., Sobolev, Ye. P.,
Zaychik, M. G.

TITLE: Influence of organic sulfur compounds on the low-temperature
properties and oxidizability of kerosene - gas-oil fractions

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1961, 423, abstract
19M180 (Sb. "Khimiya seraorgan. soyedineniy, soderzhashchikh-
sya v neftyakh i nefteproduktakh". M., AN SSSR, 1959,
304 - 315)

TEXT: With the aid of gas oils from Romashki and Tuymazy petroleum it
has been shown that sulfur compounds (SC) prevent the autocatalytic
development of the oxidation process. The antioxidizing effect of SC con-
sists in their reaction and the reaction of their oxidation products with
peroxide radicals or hydrogen peroxides of hydrocarbons. Simultaneously,
SC accelerate the oxidative polymerization and condensation leading to the
accumulation of tarry substances. The least permissible concentration of
SC in gas-oil from this standpoint depends on the chemical structure of

Card 1/2

Influence of organic sulfur...

30222
S/081/5-/000/019/067/085
B117/B110

SC and on the composition of oxidizable gas-oil. At low concentration, SC prevent the formation of acid, hydroxyl-containing, saponifiable substances formed by oxidative decomposition of peroxides. The optimum total S concentration depends on the chemical structure of SC and, apparently, on the chemical composition of gas-oil. The tarry substances contained in Romashki gas-oil are no antioxidants and have no essential effect on the character and kinetics of its oxidation. A profound extraction of SC from kerosene - gas-oil fractions with a small (optimum) quantity of SC is required. The latter is determined in advance for the relevant petroleum product subjected to hydrogenative refining. The presence of SC in paraffin petroleum products promotes the reduction of the temperature of structure formation. [Abstracter's note: Complete translation.] ✓

Card 2/2

S/081/61/000/013/019/028
B110/B205

AUTHORS: Rubinshteyn, I. A., Kleyменова, Z. A., Sobolev, Ye. P.

TITLE: Analysis of the group composition of sulfur compounds of Diesel fuels by potentiometric titration

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1961, 530, abstract 13M326 (Metody analiza organ. soyedineniy nefi, ikh smesey i proizvodnykh. I. M. AN SSSR, 1960, 74 - 100)

TEXT: This article describes a method for the physicochemical analysis of sulfur compounds of Diesel fuels, which is based on a direct determination of sulfide, mercaptane, hydrogen sulfide, and elementary sulfur by potentiometric titration. A potentiometric method was elaborated for the determination of mercaptanes in Diesel fuels, which eliminates the effect of sulfides and yields reliable results with titration in air. It was shown that the titration of sulfides with potassium iodate in iodine chloride solution is accompanied by some parallel reactions. It was proved that the values obtained by a slow titration of a number of highly sulfurous Diesel fuels in iodine chloride

Card 1/2

RUBINSHTEYN, I.A.; SOBOLEV, Ye.P.; KLEYMENOVA, Z.A.

Effect of sulfur compounds on the thermooxidative stability of diesel fuels. Khim.sera-i azotorg.sod.v nefte.i nefteprod. 3:469-474 '60. (MIRA 14:6)

1. Nauchno-issledovatel'skiy institut goryuche-smazochnykh materialov.

(Sulfur organic compounds) (Diesel fuels)

Sobolev, Ye.P.

5.4300

AUTHORS:

TITLE:

PERIODICAL:

TEXT:

S/065/60/000/007/002/002
B194/B184
Losikov, B.V., Rubinshteyn, I.A., and Sobolev, Ye.P.
A Method of Studying the Oxidation Kinetics and
Thermal-Oxidation Stability of Petroleum Products //

Khimiya i tekhnologiya topliv i masel, 1960, No 7,
pp 47-52

This article describes an oxygen absorption test of the non-circulatory type which is not affected by variations in atmospheric pressure during the course of the test and in which there is provision for replacing oxygen consumed during the experiments. Oxygen absorption tests may be made of satisfactory repeatability when the equipment is sealed off from the atmosphere but the oxidation kinetics are liable to be influenced by deficiency of oxygen. Apparatus in which the oxygen can be replaced as it is used up is usually affected by small variations in atmospheric pressure. The rate of oxidation depends on the oxygen dissolved in the sample which is not much affected by small changes in pressure, which mainly affect the accuracy of the readings. To overcome this problem the oxygen absorption test described in the article is provided with a differential manometer, illustrated schematically in

S/065/60/000/007/002/002

E194/E184

A Method of Studying the Oxidation Kinetics and Thermal-Oxidation
Stability of Petroleum Products

Fig 1, in which the pressure in the equipment is balanced against that in a sealed-off bulb maintained in a thermostat. The U-tube is filled with dibutylphthalate. With this arrangement the pressure in the apparatus may be maintained constant irrespective of changes in the atmospheric pressure. When tests are carried out under air it is necessary to replace the oxygen used up and this is done by filling the measuring burette with oxygen before the start of the test so that the process of making a measurement of oxygen absorbed replaces the oxygen used by the system. These two principles are combined in the oxygen absorption apparatus illustrated diagrammatically in Fig 2. The equipment contains two test vessels with overhead condensers in an oil bath and provided with magnetic stirrers. The pressure indicator and gas burette described above are connected to the test vessels through a capillary tube. Arrangements are provided to fill the equipment with clean dry air or oxygen and to water jacket the gas burette and pressure indicator. The water jackets maintain constant temperature to within ± 0.05 °C for 100 hours and the oil bath to within ± 0.2 °C at test temperatures up

Card 2/3

S/081/62/000/008/021/057
B160/B101

11.0140
AUTHORS:

Rubinshteyn, I. A., Kleymenova, Z. A., Sobolev, Ye. P.

TITLE:

Potentiometric determination of the group composition of organo-sulfur compounds contained in diesel fuels

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 8, 1962, 137, abstract 8D172 (Sb. "Khimiya seraorgan. soedineniy, soderzhashchikhsya v neft'yakh i nefteproduktakh. v. 4". M., Gostoptekhizdat, 1961, 82 - 91)

TEXT: The authors suggest a method for determining the group composition of sulfur-containing compounds in diesel fuel which employs potentiometric titration only. The presence of H_2S , mercaptans and elemental sulfur is first determined qualitatively. If there is no H_2S or S the various groups of organo-sulfur compounds are determined by titrating separate weighed amounts of the fuel. Mercaptans are titrated with a 0.01 normal solution of $[Ag(NH_3)_4]NO_3$ with an Ag/AgS indicator electrode; up to 0.5 g is put into 25 - 30 ml of alcohol-benzene solution (2:1). When there is

Card 1/3

S/065/63/000/002/007/008
E075/E436

AUTHORS: Sobolev, Ye.P., Popova, Ye.A., Rubinshteyn, I.A.

TITLE: Differential potentiometric titration of carboxylic and aggressive acids in sulfurous petroleum products

PERIODICAL: Khimiya i tekhnologiya topliv i masel, no.2, 1963, 56-61

TEXT: A method was developed for the determination of strong acids such as sulfonic acid, mixed with weak carboxylic acids in oxidized petroleum products and oil deposits. The strong acids were titrated potentiometrically with alcoholic KOH, the oil or deposits being dissolved in 3:2 ethanol-benzene mixture. The quantity of KOH used until a sharp increase in pH is produced corresponds to the strong acids. The titration is continued until a pH of 9.5 is reached. This additional amount of KOH corresponds to weak acidity. The deposits are titrated, after previous separation by filtration, washing with isooctane and dissolution in alcohol-benzene solvent. The method was tested on mixtures of succinic- and α -naphthalene sulfonic acids dissolved in a diesel fuel. Satisfactory results were obtained if the glass

Card 1/2

Differential potentiometric ...

S/065/63/000/002/007/008
E075/E436

electrode was kept in distilled water for 5 minutes before titration and the titration conducted rapidly until the pH of the solvent was reached. The precision of the method exceeds that of the method specified in **ГОСТ** (GOST) 5985-59. There are 2 figures and 7 tables.

Card 2/2

RUBINSHTEYN, I.A.; SOBOLEV, Ye.P.; REZVINA, S.A.

Effect of organosulfur compounds on the process of deposit
formation in diesel fuels. Khim. i tekhn. topl. i masel 8
no.10:48-53 0 '63. (MIRA 16:11)

GUREYEV, A.A.; LIVSHITS, S.M.; ZARUBIN, A.P.; SUBBOTIN, A.P.; SOBOLEV, Ye.P.

Effect of tars on the operational properties of automobile
gasolines. Khim. i tekhn. topl. i masel 9 no.9:57-62 S '64.

(MIRA 17:10,

L 23939-65 EPF(c)/ENT(m)/T Pr-4 WE
ACCESSION NR: AP5004256

S/0065/65/000/001/0045/0049

AUTHOR: Rubinshteyn, I. A.; Sobolev, Ye. P. 'B

TITLE: Properties inhibiting oxidation of organosulfur compounds
and criteria for their determination

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 1, 1965, 45-49 10-

TOPIC TAGS: oxidation inhibitor, diesel fuel, organosulfur compound

ABSTRACT: A study has been made of the oxidation-inhibiting effect of 11 organosulfur inhibitors, such as β -thionaphthol and dibenzyl sulfide, in various concentrations in hydrodesulfurized diesel fuel. Four criteria were defined: optimum inhibitor concentration, inhibitor effectiveness, inhibitor stability, and inhibition rate gradient. It was found that these criteria adequately describe the oxidation-inhibiting properties, and reflect the individual chemical structures of the inhibitors. All 11 inhibitors showed oxidation-inhibiting properties, which were mainly dependent on the character of the C-S bond rather than on the chemical structure of the hydrocarbon radical. Orig. art. has: 5 tables and 3 formulas. [SM]

Cord. 1/2

L 23939-65

ACCESSION NR: AP5004256

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: 00, FP

NO REF SOV: 004

OTHER: 002

ATD PRESS: 3176

Card 2/2

12009-66 30/11/72 DI/AG
ACC NO: AP6011222 (A) SOURCE CODE: UR/0413/66/000/006/0057/0057
INVENTOR: Gureyev, A. A.; Sobolev, Ye. P.; Shchegolev, N. V.; Alekseyev, A. I.;
Kornitskiy, V. V.; Minkin, M. L.; Senichkin, . A.; Livshits, S.M.; Englin, B.A.;
Mikulin, Yu. V.
ORG: none

TITLE: Starter fluid for engines with carburetors. Class 23, No. 179870

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 57

TOPIC TAGS: carburetor engine, starter fluid, engine starter fluid, antioxidant additive, antiwear additive

ABSTRACT: An Author Certificate has been issued describing a starter fluid for engines with carburetors. The fluid has a base of sulfuric ether and a mixture of low-boiling hydrocarbons with an antioxidant additive. It is suggested that to improve the functioning properties of the fluid, isopropyl nitrate or oxidation products of hydrocarbons plus an antiwear compound be added. [Translation] [NT]

SUB CODE: 21/ SUBM DATE: 13Nov64/

Card 1/1

UDC: 661.17:621.434.019-632

ACC NR: AP6034779 (44) SOURCE CODE: UR/0065/66/000/009/0049/0050

AUTHOR: Sobolev, Ye. P.; Churshukov, Ye. S.; Rozhkov, I. V.; Rubinshteyn, I. A.

ORG: none

TITLE: Investigation of corrosion aggressiveness of sour diesel fuels

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 9, 1966, 49-50

TOPIC TAGS: fuel corrosiveness, sour fuel, sour diesel fuel, steel corrosion

ABSTRACT: The effect of the chemical structure of eleven organosulfur compounds on the oxidizability and corrosion properties of diesel fuels has been investigated.

1. The corrosiveness of sour diesel fuels is directly related to the chemical structure of organosulfur compounds contained in these fuels.
2. The maximum effect on the corrosion of steel was found in fuels containing mercaptans, particularly the aromatic ones. The rate of steel corrosion in the presence of mercaptans is 3—4 times greater than that of the same fuel containing 80 times more sulfides and thiophenes.
3. The decisive effect on steel corrosion in sour diesel fuels occurring during

Card 1/2

UDC: 620.193.665.521.4

ACC NR: AP6034779

storage or use is not produced by the organosulfur compounds themselves, but by the sulfuric acid and sulfonic acids formed during the oxidation of these compounds.

4. Steel corrosion occurring in sour diesel fuels as a result of reaction with organosulfur compounds amounts to 3—20% of the total corrosion observed in these fuels.

[KP]

SUB CODE: 21/SUBM DATE: none/ORIG REF: 007/OTH REF: 003/

Card 2/2

ANDRIANOV, K.A.; TALANOV, V.N.; KHANANASHVILI, L.M.; SOBOLEV, Ye.S.

Interaction of α,ω -dichlorodimethylsiloxanes with ethylamine
and diethylamine. Izv. AN SSSR. Neorg. mat. 1 no.11:1849-
1852 N '65. (MIRA 18:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
M.V. Lomonosova. Submitted June 3, 1965.

MIRONOV, V.A.; SOBOLEV, Ye.V.; YELIZAROVA, A.N.

Some features of equilibrium transformations of substituted
cyclopentadienes. Izv. AN SSSR. Otd.khim.nauk no.11:2077-2078
N '62. (MIRA 15:12)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR
i Komissiya po spektroskopii AN SSSR.
(Cyclopentadiene) (Deutrium)

MIRONOV, V.A.; SOBOLEV, Ye.V.; YELIZAROVA, A.N.

Monodeuterocyclopentadiene. Dokl. AN SSSR 143 no.5:1112-1115
Ap '62. (MIRA 15:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR i
Komissiya po spektroskopii AN SSSR. Predstavleno akademikom
A.A.Balandinym.
(Cyclopentadiene) (Deuterium compounds)

S/020/62/144/001/010/024
B104/B102

AUTHORS: Bobrov, A. V., Sterin, Kh. Ye., and Sobolev, Ye. V.

TITLE: Depolarization degree of Raman spectrum lines of hydrocarbons with conjugate double bonds

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 1, 1962, 81-84

TEXT: The degree ρ of depolarization of the $\Delta\nu_s(\text{C}=\text{C})$ lines (symmetric stretching vibrations) of hydrocarbons was measured by means of a photographic equipment with an inclined illuminator. The polarized component was separated with an Osipov prism (Ya. S. Bobovich, M. V. Vol'kenshteyn, Izv. AN SSSR, ser. fiz., 12, 553 (1948)). Known lines of benzene, cyclohexane, and CCl_4 were used as reference lines. The ratio between the components of the α^* tensor is assumed to be equal in cis- and trans-bonds (Fig. 1). Taking account of the axial symmetry of α^* , the ratio $\alpha_1^*/\alpha_3^* = (1 - \sqrt{5\rho/(6-7\rho)}) / (2\sqrt{5\rho/(6-7\rho)} + 1)$ is calculated

Card 1/3

MIRONOV, V.A.; SOBOLEV, Ye.V.; YELIZAROVA, A.N.

Methylcyclopentadiene as an equilibrium mixture of isomers.
Dokl. AN SSSR 146 no.5:1098-1101 0 '62. (MIRA 15:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR i
Komissiya po spektroskopii AN SSSR. Predstavleno akademikom
B.A.Kazanskim.

(Cyclopentadiene)

BOHROV, A.V.; SOBOLEV, Ye.V.

Degree of depolarization of C O lines in some systems. Zhur.
strukt.khim. 4 no.1:108-110 Ja-F '63. (MIRA 16:2)

1. Kosimmiya po spektroskopii AN SSSR i Institut neorganicheskoy
khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk.
(Carbonyl compounds) (Depolarization (Electricity))

SOBOLEV, Ye. V.

О колебательных спектрах пятичленных ненасыщенных циклов.

report submitted for the VIITH European Congress on Molecular Spectroscopy, Budapest,
22-27 Jul 1963.

SOBOLEV, Ye.V.; ALEKSANYAN, V.T.; MIL'VITSKAYA, Ye.M.; PRYANISHNIKOVA, M.A.

Vibrational spectra of cyclic hydrocarbons with conjugate double bonds. Zhur.strukt.khim. 4 no.2:189-193 Mr-Apr '63. (MIRA 16:5)

1. Komissiya po spektroskopii AN SSSR.
(Hydrocarbons--Spectra) (Conjugation (Chemistry))

SOBOLEV, Ye.V.; ALEKSANYAN, V.T.

Some anomalies in vibrational spectra of α,β -unsaturated ketones.
Izv. AN SSSR. Ser.khim. no.7:1336-1339 J1 '63. (MIRA 16:9)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR
i Komissiya po spektroskopii AN SSSR.
(Ketenes—Spectra)

MIRONOV, V.A.; SOBOLEV, Ye.V.; YELIZAROVA, A.N.

Substituted cyclopentadienes and related compounds. Report No.10:
Three isomeric methylcyclopentadienes. Izv. AN SSSR. Ser.khim.
no.9:1607-1617 S '63. (MIRA 16:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR;
Komissiya po spektroskopii AN SSSR i Institut neorganicheskoy khimii
Sibirskogo otdeleniya AN SSSR.

(Cyclopentadiene)

SOBOLEV, Ye.V.; ALEKSANYAN, V.T.; NARYSHKINA, T.I.

Conformational state of 2,4-dimethyl-1,3-pentadiene and 3-methyl-1,3-pentadiene. Zhur.strukt.khim. 4 no.3:354-357 My-Je '63. (MIRA 16:6)

1. Komissiya po spektroskopii AN SSSR, Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR i Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Pentadiene) (Stereochemistry)

SOBOLEV, Ye. V.; ALEKSANYAN, V.T.; KARAKHANOV, R.A.; BEL'SKIY, I.F.;
OVODOVA, V.A.

Raman spectra of some alkyl-substituted furans. Zhur.strukt.khim,
4 no.3:358-363 My-Je '63. (MIRA 16:6)

1. Komissiya po spektroskopii AN SSSR.
(Furan--Spectra)

SOBOLEV, Ye.V.; ALEKSANYAN, V.T.

Vibrational spectra of aliphatic conjugated dienes. Zhur.strukt.khim.
4 no.4:527-534 J1-Ag '63. (MIRA 16:9)

1. Komissiya po spektroskopii AN SSSR i Institut neorganicheskoy
khimii Sibirskogo otdeleniya AN SSSR.
(Unsaturated compounds--Spectra)

S/079/63/033/001/006/023
D204/D307

AUTHORS: Mironov, V. A., Fadeyeva, T. M., Sobolev, Ye. V. and Yelizarova, A. N.

TITLE: Substituted cyclopentadienes and related compounds.
VI. Tetramethylcyclopentadiene as an equilibrium mixture of isomers

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 1, 1963, 84-91

TEXT: A continuation of previous work (DAN SSSR, 143, 1112 (1962)). The present study was aimed at an investigation of the isomerization of tetramethylcyclopentadiene (A) by analogy with the isomerism of dimethylcyclopentadienes studied in an earlier work. The isomeric mixture A was prepared from MeMgI/Et₂O and 2,3,4-trimethyl- Δ^2 -cyclopentenone (obtained by the method of Nazarov et al (Izv. AN SSSR, OKhN, 1946, 529), decomposing the reaction mixture with (a) diluted HCl at $\sim 30^\circ\text{C}$, and (b) crushed ice at 0°C . The yields of A were respectively 66 and 72%. 70% of the mixture was found to be

Card 1/2

Substituted cyclopentadienes ...

S/079/63/033/001/006/023
D204/D307

the isomer 1,2,3,4-tetramethylcyclopentadiene (I); the 1,2,4,5,-form (III) and probably the 1,2,3,5-form (II) were also present. Almost pure III was obtained by slow rectification of A on a high-efficiency column, at 50 - 60°C, under vacuum; this could be reversed to form I by heating. Formation of the energetically less favorable isomer III is ascribed to stopping A from attaining thermodynamic equilibrium. Adducts of maleic anhydride (MA), with I and III were prepared in 68 - 76% yields (ether-benzene solutions, -10°C) and some simple derivatives of these adducts (the corresponding dicarboxylic acid and dimethyl ester from the adduct of MA with I; the corresponding γ -lactone acid and its methyl ester from the adduct of MA with II) were prepared. The advice of V. T. Aleksanyan is acknowledged. There are 2 figures.

ASSOCIATION: Institut organicheskoy khimii imeni N. D. Zelinskogo. Komissiya po spektroskopii Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy. Spectroscopy Commission of the Academy of Sciences of the USSR)

SUBMITTED: December 11, 1961

Card 2/2

ALEKSANYAN, V.T.; SOBOLEV, Ye.V.

Certain particularities of the vibration spectra of conjugated dienes and the effect of the diene configuration on the interaction of double bonds. Dokl. AN SSSR 150 no.5:1062-1065 Je '63.
(MIRA 16:8)

1. Komissiya po spektroskopii AN SSSR. Predstavleno akademikom I.V.Obreimovym.

(Unsaturated compounds--Spectra) (Double bonds)

SOBOLEV, Ye.V.; ALEKSANYAN, V.T.; MIRONOV, V.A.

Vibration spectra of cyclopentadiene and monodeuterocyclopentadienes.
Dokl. AN SSSR 152 no.4:923-926 O '63. (MIRA 16:11)

1. Komissiya po spektroskopii AN SSSR. Predstavleno akademikom
B.A. Kazanskim.

L 15174-65 EWP(e)/EWT(m)/EWP(t)/EWP(b) IJP(c)/AFMD(t) JD/VH
ACCESSION NR: AP4044272 S/0192/64/005/004/0557/0561

AUTHORS: Sobolev, Ye.V.; Bokiy, G.B.; Dvoryankin, V.F.; Samsonenko,
N.D.

TITLE: Correlation of the optical and of the EPR spectra of type I
natural diamond ✓

SOURCE: Zhurnal strukturnoy khimii, v. 5, no. 4, 1964, 557-561 B

TOPIC TAGS: diamond EPR spectra, diamond IR spectra, diamond
property, diamond, EPR spectra, IR spectra, natural diamond

ABSTRACT: In solving a problem on the nature of defects in crystals
of natural diamonds it was of interest to compare the results of
different methods of investigation of the same specimens. It is
believed that such an investigation on the broad scale will enable
a deeper understanding of the true nature of diamond structure,
which is of interest from both the theoretical as well as from the
applied standpoint. In this investigation a comparison was made of
IR and Uv absorption spectra as well as of EPR spectra of a series
of natural diamonds. In addition, a visual study was made of the
fluorescence of crystals. In all there were 100 specimens of

Card 1/3

L 15174-65

ACCESSION NR: AP4044272

3

Yakutsk diamonds from the collection of the Institute of Geology and Geophysics of the Siberian Branch of the Academy of Sciences of the USSR (IGIGSO AN SSSR). The IR spectra were obtained on a double-beam spectrophotometer UR-10, UV spectra were taken with ISP-28 spectrophotometer and the fluorescence of specimens was excited in the near UV. The EPR spectra were obtained in the three centimeter band on the instrument RE-1301. All spectra were obtained at room temperature. A linear dependence was found between the intensity of bands due to nitrogen impurity both in IR spectra (400 and 1280 cm^{-1} bands) and in EPR spectra. It was also found that there exists a relationship between the intensity of bands of IR spectra in 1360 - 1380 cm^{-1} region and the complex system of bands in the $g = 2$ region of EPR spectra. Characteristic spectra were discovered in lemon-yellow and in brown crystals. The IR spectrum of such crystals also shows an individual band at 4100 cm^{-1} , the intensity of which changes with change of the depth of coloration of crystals. "In conclusion the authors wish to thank Academician V. V. Voyevodskiy for permission to work on the EPR instrument as well as M. Ya. Scherbakova of the IGIGSO AN SSSR for her help in obtaining EPR spectra." Orig. art. has: 2 figures.

Card 2/3

L 15174-65
ACCESSION NR: AP4044272

2

ASSOCIATION: Institut neorganicheskoy khimii SO. AN SSSR (Institute of Inorganic Chemistry of the Siberian Branch of the Academy of Sciences of the SSSR) Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics of the Academy of Sciences of the SSSR)

SUBMITTED: 07Mar64

ENCL: 00

SUB CODE: OP

NR REF SOV: 001

OTHER: 009

Card 3/3

ACCESSION NR: AP4042990

S/0051/64/017/001/0135/0136

AUTHORS: Sobolev, Ye. V.; Bobrov, A. V.

TITLE: Raman spectra of conjugated dienes at low temperatures

SOURCE: Optika i spektroskopiya, v. 17, no. 1, 1964, 135-136

TOPIC TAGS: conjugated diene, Raman spectrum, temperature dependence, low temperature research, cryostat, line intensity

ABSTRACT: The Raman spectra were obtained with a DFS-12 diffraction spectrometer and a specially constructed cryostat capable of operating with ordinary cuvettes, and producing temperatures down to -140C. The substances investigated were pentadiene-1, 3, 2-methylhexadiene-2,4, hexadiene-2,4, 2,5-dimethylexadiene-2,4, 2,4-dimethylpentadiene-1,3, and mesityl oxide. The lines of all the liquid samples exhibited splitting into two or more components, with the most significant change occurring in 2,4-dimethylpentadiene-

Card

1/4

ACCESSION NR: AP4042990

1,3 and mesityl oxide. In the former, four lines appear in the 1600--1660 cm^{-1} region, and their intensity has a pronounced temperature dependence. Calculation of the interatomic distances indicates that the trans-conformation is sterically less favored than the cis-conformation. Orig. art. has: 2 figures.

ASSOCIATION: None

SUBMITTED: 17Jun63

ENCL: 02

SUB CODE: OP, OC

NR REF SOV: 006

OTHER: 001

Card

2/4

42978-65 EWP(e)/EWT(m)/EPF(c)/EWP(i)/EPR/EWP(t)/EWP(b) Pr-4/ps-4 IJP(c)
JD/WH S/0289/64/000/003/0156/0157

ACCESSION NR: AP5009429

AUTHOR: Sobolev, Ye. V.; Samsonenko, I.D.; Lenskaya, S.V.

TITLE: The state of nitrogen present as an impurity in natural diamonds

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 3, 1964, 156-157

TOPIC TAGS: diamond structure, nitrogen admixture, infrared spectrum, ammonium tetraethylbromide, paramagnetic center, electron paramagnetic resonance

ABSTRACT: The authors studied the IR spectrum of ammonium tetraethyl bromide (containing a nitrogen atom bound to four carbon atoms) as a model system and determined the concentration of paramagnetic centers in diamonds by comparing this with the spectrum of a standard ($\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$). They also determined the number of absorbing centers in the IR and ESR spectra. The study showed that C-N bonds should be present in diamonds; the formation of such bonds is thought to be due to the substitution of nitrogen for carbon. The discrepancy between the number of paramagnetic centers and the total number of nitrogen atoms is discussed. Variation in the ratio $\frac{N_{\text{total}}}{N_{\text{param}}}$ from one

Card 1/2

L 42978-65

ACCESSION NR: AP5009429

kind of diamond crystal to another are considered. Also treated is the problem of the influence of the conditions of formation of diamonds on the character of the ESR spectra. The authors express the hope that comparative studies of optical and ESR spectra of diamond crystals from various deposits will provide information on the conditions of their formation and their differences, which will be of unquestionable interest to crystal chemistry and geology.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk (Institute of Inorganic Chemistry, Siberian Branch AN SSSR)

SUBMITTED: 09Jul64

ENCL: 00

SUB CODE: IC, MT

NO REF SOV: 003

OTHER: 005


Card 2/2

AGHOLIEV, Ye.V.; KOZIT, G.B.; SVORTANKIN, V.F.; SAMSONENKO, N.D.

Distribution of the optical and electron paramagnetic spectra
of natural diamonds of type I. Zhur. strukt. khim. 5 no.4:
558-561. Apr '61. (MIRA 18:3)

1. Institut neorganicheskoy khimii Sibirekogo otdeleniya AN
SSSR i Instytut radiofiziki i elektroniki AN SSSR.

KAZANSKIY, B.A., akademik; SOBOLEV, Ye.V.; ALEKSANYAN, V.T.; NAKHAPETYAN, L.A.; LUKINA, M. Yu.

Certain properties of spiro-[2,4]-hepta-1,3-diene. Dokl. AN SSSR
159 no.4:839-842 D '64 (MIRA 18:1)

1. Institut organicheskoy khimii im. N.D. Zelinskogo i Komissiya
po spektroskopii AN SSSR.

SOBOLEV, Ye.V.; LENSKAYA, S.V.

Evidence of "gaseous" impurities in the spectra of natural diamonds.
Geol. i geofiz. no.2:157-159 '65. (MIRA 18:9)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR,
Novosibirsk.

L 63618-65 EPF(c)/EWT(1)/EWT(m)/ENP(b)/ENP(t) Pi-4 IJP(c) GG/WW/JD
 ACCESSION NR: AP5016918 UR/0192/65/006/003/0460/0461
 538.113

AUTHOR: Sobolev, Ye. V. ; Boki, G. B. ; Samsonenko, N. D.

TITLE: Some aspects of the ESR spectra of diamonds

SOURCE: Zhurnal strukturnoy khimii, v. 6, no. 3, 1965, 460-461

TOPIC TAGS: diamond, nitrogen impurity, electron spin resonance, ESR spectrum

ABSTRACT: An earlier study of the optical properties and ESR spectra of natural diamonds showed the existence of a correlation between the content of nitrogen present as an impurity and the concentration of paramagnetic nitrogen centers in the sample. In the present article, an attempt was made (using artificial diamonds) to check the hypothesis that this correlation is probabilistic in character, and that the ratio of N_{paramagn} to N_{tot} may be related to the conditions of formation of the diamonds. ESR spectra of artificial diamonds in the form of a crystalline powder or polycrystalline aggregates showed that in the range of $g \approx 2$, a spectrum is observed which corresponds to the predicted spectrum for paramagnetic nitrogen in diamond powder. Measurement of the concentration of paramagnetic atoms gave values ranging from 10^{18} to 5×10^{19} spin/cm³, i.e., values which are much closer to the total nitrogen content than in the colorless, transparent Yakutia diamonds up to 5×10^{15}

Card 1/2

L 63618-65

2

ACCESSION NR: AP5016918

spin/cm³). The line width ΔH_{max} varies from 1 to 7 Oe. In addition to the relatively narrow nitrogen lines, the ESR spectra of artificial diamonds also show very broad lines apparently belonging to metallic impurities. Some conclusions are drawn with regard to the conditions of formation of certain types of natural diamonds. Orig. art. has: 1 figure

ASSOCIATION: Institut neorganicheskoy khimii SO AN SSSR (Institute of Inorganic Chemistry, SO AN SSSR); Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 13Jan65

ENCL: 00

SUB CODE: MT, OP

NO REF SOV: 004

OTHER: 004

Card ^K2/2

SOROTEV, Ye.V.; BOKLY, G.B.; IISOYVAN, V.I.; DVORYANKIN, V.F.

Nature of extra reflections of the "Hessan" type on Laue diffraction patterns of natural diamonds. Zhur. struk. Khim. 6 no.3:468-469
Mys-Je '65. (MIRA 18:8)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR i
Institut radiotekhniki AN SSSR.

SOBOLEV, Ye.V.; MIRONOV, V.A.; FADEYEVA, T.M.

Substituted cyclooctadienes and related compounds. Report 14:
Special features of the vibrational spectra of adducts of
substituted cyclopentadienes with maleic anhydride. Izv. AN
SSSR. Ser. khim. no.8:1357-1363 '65. (MIRA 18:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR i
Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.

MARTINKEVICH, F.S., kand.geograf.nauk; SOBOLEV, Ye.Ye., kand.geograf.nauk;
 BOL'SHAKOVA, V.P., kand.ekonom.nauk; LAPETA, D.D., kand.ekonom.
 nauk; GLADKIY, V.I., kand.geograf.nauk, starshiy prepodavatel';
 ANICHENKO, G.V., kand.geograf.nauk; KOTT, G.Z.; TRUBILKO, N.P.,
 kand.ekonom.nauk; KOROLENKO, I.K., kand.ekonom.nauk; GUTSEV, Ye.G.,
 kand.geograf.nauk; CHERNENKO, V.A.; CHERNYSH, L.P.. Prinimali
 uchastiye: KOZLOVA, A.I.; KOVALEVSKIY, P.V.; MAZURENKO, R.V.;
 KUYEYSHA, Ye.I.; KRYLOVA, V.S.; SERZHINSKIY, I.I.; KURKINA, Z.;
 KALECHITS, T.A.. ROMANOVSKIY, N.T., red.; KOSTEVICH, K.R., red.;
 TURTSEVICH, L., red.izd-va; SIDERKO, N., tekhn.red.

[Distribution of the industry of White Russia for the processing
 of agricultural raw materials] Razmeshchenie promyshlennosti BSSR
 po pererabotke sel'skokhoziaistvennogo syr'ia. Minsk, 1959. 193 p.
 (MIRA 13:6)

1. Akademiya nauk BSSR, Minsk. Institut ekonomiki. 2. Zaveduyu-
 shchiy sektorom razmeshcheniya proizvodstva Instituta ekonomiki
 Akademii nauk BSSR (for Martinkevich). 3. Institut narodnogo
 khozyaystva im. V.V.Kuybysheva (for Gladkiy).

(White Russia--Industries, Location of)

SOBOLEV, Ye.Ya.

Canneries need cold storage plants. Kons.1 ov.prom. 14 no.2:35-36
F '59. (MIRA 12:3)

1. Institut ekonomiki AN BSSR.
(White Russia--Canning industry)
(Cold storage warehouses)

80596

S/148/60/000/005/006/009

18.7100

AUTHORS: Lipchin, N.N., Sobolev, Yu.A.

TITLE: The Effect of Superheat on Steel Properties

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya,
1960, Nr 5, pp 135 - 141

TEXT: Recent publications contain data on the use of high temperature heating in order to intensify various heat treatment processes [Refs 1, 2, 3]. For the purpose of introducing superheat to intensified heat and chemical heat treatment processes it is necessary to establish the admissibility of coarse-grained structure for machine parts with such defects as naphthalene-like and stony fractures. The authors present results of investigations into properties of two standard structural steel grades, namely 40G and 34XHM (34KhN3M) steel, with the use of metallographical and dilatometrical analyses; the specimens were subjected to tests after various heat treatment conditions. The individual experiments were made at UZTM with the participation of P.A. Sklyuyev, Candidate of Technical Sciences. It was established that the degree

Card 1/3

30576

The Effect of Superheat on Steel Properties

8/148/60/000/005/006/009

of the effect of preliminary superheating depended on a series of factors such as: alloyage of the steel; thickness of the original blank; degree of forging reduction; the temperature range of pressure working; conditions of subsequent cooling, subsequent heat treatment etc. Therefore the problem of admissible superheat must be solved by taking into account the combination of above-mentioned factors and the final results of mechanical properties at temperatures below zero. The main deficiency of coarse-grained superheated steel is its concentrational heterogeneity, reduced ductile properties and the shift of the cold brittleness range toward the positive temperatures of the tests. To obtain corrected structures and recovered ductile properties, independent of the nature of fracture (either naphthalene-like or stony), it is necessary to carry out homogenizing annealing at temperatures which are slightly above the additional range of phase transformation in zones enriched with admixtures. The subsequent phase recrystallization (normalization or quench hardening) ensures the grain refinement and adequate mechanical properties after appropriate tempering.

Card 2/3

30596

The Effect of Superheat on Steel Properties

S/148/60/000/005/006/009

There are: 3 sets of photographs, 1 set of microphotos, 1 table, 3 graphs and 5 Soviet references.

ASSOCIATION: Permskiy gosudarstvennyy universitet (Perm' State University)

SUBMITTED: July 27, 1959

✓

Card 3/3

0030 100 1000 100 1000. nauk

Use of electronic computers in production management; conference
in Moscow. Vest. AN SSSR 35 no.2:122-124 F '65.

(MIRA 18:3)

KIKNADZE, D.A.; IZASHVILI, R.P.; MANEVICH, A.M.; SAGIYEV, S.S.; QISIN, P.G.;
Prinimali uchastiye: MALOVITSKIY, V.S.; SOBOLEV, Yu.B.; VASIL'YEV, M.G.;
TIMOSHENKO, S.I.

Automatic line for the painting of children's carriages with the jet
spraying method; experience in the introduction and use. Lakokras.
mat. i ikh prim. no.3:69-75 '63. (MIRA 16:9)
(Spray painting—Equipment and supplies)

SOV-113-58-8-10/21

AUTHOR: Sobolev, Yu.G.

TITLE: The Analysis of the Load Characteristics of the Blocked Semi-Axles of the Car (Issledovaniye nagruzochnogo rezhima blokirovannykh poluosey avtomobilya)

PERIODICAL: Avtomobil'naya Promyshlennost', 1958, Nr 8, pp 30-34 (USSR)

ABSTRACT: This article gives a brief theoretical analysis of the distribution of torques effected by the differential gear and a description of research on the influence of the forced blocking of the differential gear on the roadability of the car and the load characteristics of its semi-axles. This research was carried out by the Moskovskiy avtomekhanicheskiy institut (Moscow Institute of Automotive Mechanics) jointly with the Avtozavod imeni Likhacheva (Automobile Plant imeni Likhachev) on one of the variants of the "ZIL 6x6" type car in table 1. Results show, that if the blocking system is

Card 1/2

SOV-113-58-8-10/21

The Analysis of the Load Characteristics of the Blocked Semi-Axles of the Car

engaged in case of wheel slipping, the roadability will not be increased, but the immobile wheels will also begin to slip. For these reasons, the author recommends the blocking system be engaged in advance before the wheel can slip. There are 2 diagrams, 4 graphs, 2 tables and 1 Soviet reference.

ASSOCIATION: Moskovskiy avtomekhanicheskiy institut (The Moscow Institute of Automotive Mechanics)

1. Automobile industry--USSR 2. Shafts--Torque 3. Shafts
--Stresses 4. Shafts--Test methods

Card 2/2

SOBOLEV, Yu.M.

Designing parts with "no-waste" and "low-waste" shapes. *Proizv.-tekh.*
inform. no.7:41-48 '52. (MLRA 10:3)
(Machine tools--Design) (Sheet-metal work)

SOBOLEV, Yu.N., inzh.

Regularities of dendrite formation during acierage. Trudy
LIVT no.60:15-20 '64 (MIRA 18:2)

KAYBIYAYNEN, L.K., inzh.; SOBOLEV, Yu.N., inzh.

Relationship between the appearance and internal structure of
solid electrolytic iron deposits and plating conditions. Izv.
vys. ucheb. zav.; mashinostr. no.4:136-144 '65.

(MIRA 18:5)

SOBOLEV, YU.P.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1727
AUTHOR JAKOVLEV, G.N., ČULKOV, P.M., DEDOV, V.B., KOSJAKOV, V.N., SOBOLEV, YU.P.
TITLE The Production of Thin Layers of Plutonium, Americium, and Curium
by the Method of Electric Deposition.
PERIODICAL Atomnaja Energija, 1, fasc. 5, 131-132 (1956)
Issued: 1 / 1957

For the examination of the nuclear properties of transuranium metals the authors developed a method of quantitative electric deposition of Pu, Am, and Cm on metal surfaces. Deposition occurred from neutral and slightly acid alcohol-acetone solutions of chlorides in form of hydroxides.

Apparatus: Various types of electrolyzers were used for the investigation. The glass bowls were carefully pressed immediately on to the cathode. The platinum anode is arranged strictly parallel to the cathode. With a set of glass vessels it is possible to obtain layers with different areas and of different shapes. Illustrations of electrolyzers are attached.

Experimental Methods: As to density of the depositions and quality of the layers, electrolysis of the neutral solutions furnishes compounds of trivalent chlorides. A mixture of 50% ethyle alcohol, 45% acetone, and 5% water was used as a solvent. The most effective method for the production of trivalent plutonium is the chlorination of plutonium oxide by tetrachlorine carbon vapors in a noble gas atmosphere at from 625 to 650° C. Also the production of neutral solutions of Americium and Curium chloride presents no difficulties. The qualitative separation of elements and the production of qualitatively fully satis-

Atomnaja Energija, 1, fasc. 5, 131-132 (1956) CARD 2 / 2

PA - 1727

factory layers with a maximum density (in the case of plutonium) of $0,5 \text{ mg/cm}^2$ was successfully carried out.

The Electrolysis of Acid Solutions of Am, Cm, and Pu: On the occasion of electric deposition from slightly acid electrolytes the method of the production of initial materials is considerably simplified, but also hydrogen is deposited, and hereby the quality of the deposits deteriorates somewhat. The electric deposition of plutonium occurred from hydrochloride alcohol-acetone solutions with a pH-value of the electrolyte of from 1,5 to 2 and a current density of from 5 to 10 milliamperes/cm². On this occasion plutonium was practically deposited quantitatively, and the layers of satisfactory quality attained thicknesses of $0,3 \text{ mg/cm}^2$. The electric deposition of Americium and Curium occurred at a current density of 10 milliamperes/cm² and a pH-value of the electrolyte of from 2 to 2,5. Also a simultaneous deposition of this element is possible.

In conclusion the electrolytic deposition of plutonium from an alcohol-acetone solution of carbon tetrachlorine at pH = 1 and at a current density of 40 milliamperes/cm² is discussed. The above methods were repeatedly employed by the authors.

INSTITUTION:

Sobolev, Yu. P.

Atomic spectrum of americium. M. N. Ozanov, A. P. Striganov, and Yu. P. Sobolev. *Optika i Spektroskopiya* 1, 985-71(1956). This spectrum of Am was investigated in the region from 2500 to 7700 Å. A total of 1044 lines have been measured of which 817 are reported for the 1st time. The position of each line was measured with an accuracy of ± 0.0015 mm. The av. exptl. error was $\pm 0.05-0.1$. The method is described. A. P. Kotloby

Phys
Sci

PM nje

FA - 1771

CARD 1 / 2

SUBJECT USSR / PHYSICS
 AUTHOR KONDRAT'EV, L.N., NOVIKOVA, G.I., SOBOLEV, YU.P., GOL'DIN, L.I.
 TITLE The α -Decay of Pu^{240} .
 PERIODICAL Zhurn. eksp. i teor. fis., 31, fasc. 5, 771-774 (1956)
 Issued: 1 / 1957

The authors investigated the spectrum of two plutonium sources within the energy range of from 4.800-5.050 MeV by means of the α -spectrometer of the Academy of Science in the USSR. The results obtained by the experiments which took 2 weeks each, are illustrated in form of a diagram. A line A_1 , which is known from literature, and which is due to the α -decay of Pu^{240} on to the level 4+ of the daughter nucleus, is clearly marked. The authors were able to give precise definitions of the parameters obtained for this level. Besides this line A_1 , also the lines A_2, A_3, A_4 and A_5 are visible in the spectrum of the source A (12% Pu^{239} , 88% Pu^{240} , < 0,2% Pu^{241} , < 0,2% Pu^{242}). In the spectrum of the source B (80% Pu^{239} , 17% Pu^{240} , 3% Pu^{241} , 0,5% Pu^{242}), apart from the line A_1 , also the lines B_4 and B_5 are visible. The last two lines are apparently due to the admixture of Pu^{241} and Pu^{242} in the source B, but the line B_5 originates from the superposition of the first satellites. A table contains the energies and relative intensities of the α -particles of Pu^{241} and Pu^{242} . The line A_5 apparently belongs neither to Pu^{241} nor to Pu^{242} .

Sobolev, Yu. P.

Distr: HE3d

3393

19 19

ALPHA DECAY OF Pu^{240} . L. N. Kondrat'ev, G. I. Novikov, Yu. P. Sobolev, and L. L. Gol'din. Soviet Phys. JETP 4, 645-7 (1957) June.

In this work results are given of investigations on the α spectrum of Pu^{240} carried out with the help of an α spectrometer. The α spectra obtained are presented along with a level scheme for the U^{238} nucleus. The parameters of the 4^+ level are given with precision; the first α line corresponding to the transition to a 6^+ level is observed, and the parameters of this level measured; two weak lines are found which can be assigned to the α decay of Pu^{240} . A comparison of the experimental data with the theoretical formula of Landau is made for the intensities of the 0^+ , 2^+ , 4^+ , and 6^+ levels. (auth)

7-1-RMZ

RMP

SOBOLEV, Y.P.

10
1-4E2C

8836

THE PREPARATION OF THIN FILMS OF PLUTONIUM,
AMERICIUM AND CURIUM BY AN ELECTROLYTIC
METHOD. G. N. Yakovlev, P. M. Chul'kov, V. B. Dedov,
V. N. Konyakov, and Y. P. Sobolev. J. Nuclear Energy B,
No. 1, 159-61(1957).

Methods for quantitative electrodeposition of Pu, Am, and
Cm. on metallic surfaces were developed. The elements
were deposited as hydroxides from neutral and weakly
acidic alcoholic solutions of the chlorides. (M.H.R.)

dm R6 gpa

AUTHOR

NOVIKOVA, G.I., KONDRAT'YEV, L.N., SOBOLEV, Yu.P., GOL'DIN, L.L. 6-5-11/55

TITLE

The Alpha-Decay of Pu^{239} .
(Alpha-raspad Pu^{239} . - Russian)

PERIODICAL

Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 5, pp 1018-1021 (USSR)

ABSTRACT

First all the paper under review makes reference to some relevant previously published papers and thus outlines the present stage in the investigations with respect to the above problem. The authors investigated the α -spectrum of Pu^{239} by means of a magnetic α -spectrometer in the energy interval from 4,850 to 5,120 MeV. The first diagram in the paper under review represents the α -spectrum in the energy interval 5,025 - 5,120 MeV. One can see quite distinctly a line that corresponds to the level of 84 keV. A second diagram shows the part of the spectrum situated in the energy interval 4,850-5,080 MeV. With certainty one can see here an α -line corresponding to the level with the excitation energy of 151 keV. The intensity of this transition amounts to (0.013 0.005) %. The excitation energy of the level with $I = 9/2$ belonging to the rotational band with $K = 1/2$ amounts to 153 keV and thus coincides with the energy of the level discovered by the authors of the paper under review. Thus the energies of

CARD 1/3

56-5-11/55

The Alpha-Decay of Pu^{239} .

three levels following each other are in good agreement with the two-parameter formula proposed by A. Bohr (Rotational States of Atomic Nuclei, Copenhagen, 1954). Therefore the lowest level actually has the spin $1/2$, and it is the first level of the developed system of the rotational levels with $K = 1/2$. It is possible to compute the main characteristics of the nucleus from the distances between the levels:

$$\hbar^2/2J = 6.1 \text{ keV}, a = -0.276.$$

The intensities of the transitions to the levels with $I = 3/2$ and $I = 5/2$ differ only little from each other, but they are five to seven times smaller than the intensity of the transition to a level with $I = 1/2$. The intensities of the transitions to the levels with $I = 7/2$ and $I = 9/2$ differ only slightly from each other, but they are several hundred times smaller than the intensities of the transition to the two previous levels. From the structure of the doublet the following conclusions can be drawn: The α -particles corresponding to the transition between the basic state of Pu^{239} and the level $1/2\text{U}^{235}$ carry away with them the angular momentum $1 = 0$. For this reason, the basic state

CARD 2/3

ZAYTSEV, A. A., KONTAKOV, V. A., KILBY, A. G., GUTILEV, I. I. and LARSEN, G. A.
(Inst. of Atomic Energy AS USSR)

"Investigation of Several Oxidation-Reduction Reactions of Americium"

Isotopes and Radiation in Chemistry, Collection of papers of
2nd All-Union Sci. Tech. Conf. on Use of Radioactive and Stable Isotopes and
Radiation in National Economy and Science, Moscow, Izd-vo AN SSSR, 1958, 380pp.

This volume published the reports of the Chemistry Section of the
2nd AU Sci Tech Conf on Use of Radioactive and Stable Isotopes and Radiation
in Science and the National Economy, sponsored by Acad Sci USSR and Main
Admin for Utilization of Atomic Energy under Council of Ministers USSR
Moscow 4-12 Apr 1957.

5 (2)

AUTHORS:

Zaytsev, A. A.; Kosyakov, V. N.;
Rykov, A. G.; Sobolev, Yu. P.;
Yakovlev, G. N.

SOV/89-7-7-7/26

TITLE:

The Radiolytic Reduction of Am (VI) and Am (V) (Radioliticheskoye vostanovleniye Am (VI) i Am (V))

PERIODICAL:

Atomnaya energiya, 1959, Vol. 7, Nr 1, pp 37 - 46 (USSR)

ABSTRACT:

The constants of the radiolytic reaction rate of AmO_2^{2+} in hydrochloric, nitric and sulphuric acid are experimentally determined, the radiation yields of the reduction products furnishing the values for calculating the reaction rate. If these quantities are combined with the production of hydrogen peroxide, it is possible herefrom to draw conclusions as to the contribution made by hydrogen radicals in the reduction reaction. On the basis of experimental data it is believed to be possible to give a mechanism for the radiolytic reduction of AmO_2^{2+} and AmO_2^+ . From the equations deduced for the reduction rate of AmO_2^{2+} it is possible to calculate the production of hydrogen peroxide and of hydrogen radicals in the solutions in-

Card 1/3

The Radiolytic Reduction of Am (VI) and Am (V)

SOV/89-7-1-7/26

investigated. The following is to be said with respect to the experimental part: Chemically pure Am^{241} was used, which contained less than 1% impurities. The chemical reagents were purified separately although they were "chemically pure". The americium concentration in the solutions was radiometrically measured. The production of Am(V), Am(VI), the self-reduction of Am(V) and Am(VI), and the accumulation of hydrogen peroxide in Am^{241} -solutions are described in detail. The results obtained are partly shown by diagrams, and the following curves deserve special mention: a) radiolytic reaction of americium in 2.0 M HClO_4 and in 0.2 M $\text{HClO}_4 + 1.0 \text{ M H}_2\text{SO}_4$; radiolytic reaction of Am(V) and accumulation of H_2O_2 in 1.0 M H_2SO_4 . b) Variation of the average valence state (\bar{N}) of americium in the radiolytic reduction in 9.0 M HClO_4 at various americium concentrations. c) Variation of the average valence state (\bar{N}) of americium in the radiolytic reaction in 0.5 M HNO_3 up to 14.3 M HNO_3 . The rates and the yield of the radiolytic redox-

Card 2/3

The Radiolytic Reduction of Am (VI) and Am (V)

S07/89-7-1-7/26

tion of AmO_2^{2+} , the observed and calculated reduction rate of AmO_2^+ in 0.1 M H_2SO_4 , as well as the yields of H_2O_2 and of the hydrogen radicals in sulphuric- and hydrochloric acid are given in tables. There are 7 figures, 3 tables, and 13 references, 3 of which are Soviet.

SUBMITTED: November 17, 1958

Card 3/3

21 (1), 5 (2)

AUTHORS:

Zaytsev, A. A., Kosyakov, V. N., Rykov, A. G., Sobolev, Yu. P., Yakovlev, G. N. SOV/89-7-1-13/26

TITLE:

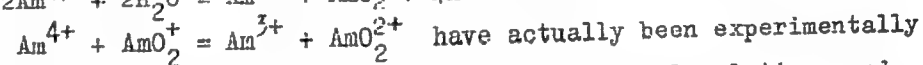
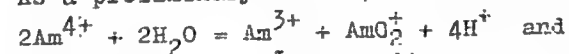
Disproportionation of Am (IV) (Disproportsionirovaniye Am (IV))

PERIODICAL:

Atomnaya energiya, 1959: Vol 7, Nr 1, pp 69-71 (USSR)

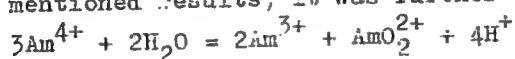
ABSTRACT:

As a preliminary result, it is said that the reactions



proved. The production of the various chemical solutions and the times needed for working-up the material are given. The concentration of Am (III), Am (IV), and Am (VI) was measured by means of the quartz spectrometer SF-4. The material to be measured was filled into a hermetically closable cylindrical cuvette of 2 cm length, and was measured in the spectrometer in this condition. Total americium concentration was determined

from the α -activity of the Am^{241} . Apart from the initially mentioned results, it was further stated that the reactions:



Card 1/2

Disproportionation of Am (IV)

SOV/89-7-1-13/26

$2\text{AmO}_2^+ + 4\text{H}^+ = \text{AmO}_2^{2+} + \text{Am}^{4+} + 2\text{H}_2\text{O}$ can be proved. The yields of individual reactions depending upon the molar concentration of the various solutions are mentioned. There are 1 table and 8 references, 2 of which are Soviet.

SUBMITTED: November 17, 1958

Card 2/2

ZAYTSEV, A.A.; KOSYAKOV, V.N.; RYKOV, A.G.; SOBOLEV, Yu.P.;
YAKOVLEV, G.N.

[Kinetics of americium (V) reduction by hydrogen peroxide]
Kinetika vosstanovleniia ameritsiia (V) perekis'iu vodoroda.
Moskva, In-t atomnoi energii AN SSSR, 1960. 11 p.
(MIRA 16:12)

(Americium) (Reduction, Chemical)

ZAYTSEV, A.A.; KOSYAKOV, V.N.; RYKOV, A.G.; SOBOLEV, Yu.P.;
YAKOVLEV, G.N.

[Disproportionation of americium (V)] Disproportsioniro-
vanie ameritsiia (V). Moskva, In-t atomnoi energii AN SSSR,
1960. 18 p. (MIRA 16:12)

(Americium)

ZAYTSEV, A.A.; KOSYAKOV, V.N.; RYKOV, A.G.; SOBOLEV, Yu.P.; YAKOVLEV, G.N.

Disproportionation of americium(V). Radiokhimiia 2 no.3:339-347 '60.
(MIRA 1):10)

(Americium)

ZAYTSEV, A.A.; KOSYAKOV, V.N.; RYKOV, A.G.; SOBOLEV, Yu.P.; YAKOVLEV, G.N.

Kinetics of reduction of americium(V) by hydrogen peroxide. Radio-
khimiia 2 no.3:348-350 '60. (MIRA 13:10)
(Americium) (Hydrogen peroxide)

L 45812-66 ENT(m)/ENP(j) IJP(c) RM

ACC NR: AR6023261

SOURCE CODE: UR/0058/66/000/003/A059/A059

AUTHOR: Denisikov, A. I.; Sobolev, Yu. P.

TITLE: Determination of self-absorption in Tl^{204} sources

SOURCE: Ref. zh. Fizika, Abs. 3A499

REF SOURCE: Tr. Soyuzn. n.-i. in-ta priborostr., vyp. 2, 1965, 152-154

TOPIC TAGS: thallium, radioactive source, electron capture, self absorption, Beta counter/ T-25-BFL end window counter

ABSTRACT: Self-absorption was measured in Tl^{204} sources. The magnitude of the self-absorption was determined by comparing the activities of the investigated sources with the activity of a "weightless" source. To prepare the sources, a solution of metallic Tl^{204} in 0.5N HNO_3 was used. The amount of salt in the solution was 20 $\mu g/\mu Ci$. The substrates used were organic films $\sim 30 \mu g/cm^2$ thick, prepared from vinyl perchloride, resin-coated with a layer of gold to make it conducting. The "weightless" sources were prepared by a method of electrocapillary sputtering. To determine the activity of the "weightless" sources, a proportional $4\pi \beta$ -counter was used (with allowance of absorption in the substrate). The electron capture in Tl^{204} was assumed to be 2%. Comparison of the activities of the investigated sources with the activity of the "weightless" source was with the aid of an end-window counter of the T-25-BFL type. The distance between the source and the counter window was 15 mm. From the plot presented it follows that the maximum near which the counting rate is proportional to the activity, occurs at $\sim 5 mg/cm^2$, irrespective of the thickness of the substrate and

Card 1/2

L 45812-66

ACC NR: AR6023261

0

of the active layer of the source. The method described was used to determine also the coefficient of back scattering of β radiation of Tl^{204} from an aluminum substrate. The value of the back-scattering coefficient turned out to be 0.395 ± 0.01 , in agreement with available published data. S. Z. [Translation of abstract]

SUB CODE: 20,18

Card 2/2 hs

Sobolov, Yu P

79-1-57/63

AUTHORS: Berezovskiy, V. M. , Sobolov, Yu. P.

TITLE: The Electrolytic Reduction of 2,4-Diamino-5-Isonitroso-6-Oxypyrimidine (Elektroliticheskoye vosstanovleniye 2,4-diamino-5-izonitroso-6-oksipirimidina)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28,Nr 1,pp.261-264(USSR)

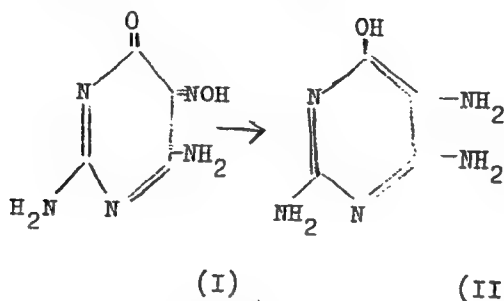
ABSTRACT: The reactions of the chemical and catalytic reduction of the nitroso group of pyridine compounds have been sufficiently well determined in publications, especially for 2,4-diamino-5-isonitroso-6-oxypyrimidine (references 1, 2) which is of importance for the synthesis of pholic acid. But the electrolytic reduction method of nitroso pyrimidines has been little investigated. Among few works in this domain especially the electrolytic reduction of 3-methyl-4-amino-5-isonitroso-2,6-dioxypyrimidine on a lead cathode in 60% sulfuric acid has to be taken not of (reference). In the present paper the electrolytic reduction of 2,4-diamino-5-isonitroso-6-oxypyrimidine (formula I) in an acid and an alkaline medium was investigated; the yield of 2,4,5-triamino-6-oxypyrimidine (II)

Card 1/2

The Electrolytic Reduction of 2,4-Diamino-5-Isonitroso-6-Oxypyrimidine

79-1-57/63

amounted to 77 - 80 %:



The reduction of the aromatic nitroso compounds usually takes place with high yields (93-97%). It was shown that in the electrolytic reduction of 2,4-diamino-5-isonitroso-6-oxypyrimidine in an acid medium the cathode material exerts an influence upon the yield of com-

pound (II), which is not observed in an alkaline medium. There are 2 figures, 3 tables, and 7 references, 4 of which are Slavic.

ASSOCIATION: All-Union Scientific Institute for Vitamin Research
(Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut)
SUBMITTED: January 10, 1957
AVAILABLE: Library of Congress
Card 2/2

1. Chemistry 2. Pyridine compounds-Chemical reactions

BEFEZOVSKIY, V.M.; SOBOLEV, Yu.P.

Reduction of D-ribono- α -lactone to D-ribose with a sodium amalgam.
Khim.nauk i prom. 3 no.5:677-678 '58. (MIRA 11:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
(Aldoses) (Lactones)

BEREZOVSKIY, V.M.; SOBOLEV, Yu.P.

Reduction of the d-ribno- γ -lactone to d-ribose by an amalgam
of sodium. Trudy VNIVI 6:34-39 '59. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
Sinteticheskaya laboratoriya.
(RIBOSE)

5 (3)

AUTHORS:

Berezovskiy, V. M., Sobolev, Yu. P.

SOV/79-29-4-67/77

TITLE:

Catalytic Reduction of the Halogen-Alkyl Substituted Aromatic Nitrocompounds (Kataliticheskoye vosstanovleniye galogenalkil-zameshchennykh aromaticheskikh nitrosoyedineniy)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1353 - 1358 (USSR)

ABSTRACT:

In the present paper is shown that a secondary alkylation reaction of the aromatic amine with the not yet reduced halogen-alkyl substituted aromatic nitrocompound is the reason of the small yields of o-4-xylydine (II) which is formed in the case of the hydrogenation of 2-chloro-methyl-4-nitrotoluene (I) in the presence of the skeleton nickel catalyst. The produced amine (III) is then hydrogenated into xylydine (IV) which is isolated and easily determined with respect to structure by an analysis which is directed towards the primary amino group (Scheme). The catalytic hydrogenation of (I) is apparently complicated by the formation of the triamine (VI) on the strength of the alkylation of the secondary amine (III) by (I) into the tertiary amine (V) which for its part is transformed into (VI) by a further reduction. The triamine (VI) could be easily obtained by the alkylation.

Card 1/2

Catalytic Reduction of the Halogen-Alkyl Substituted Aromatic Nitrocompounds SOV/79-29-4-67/77

tion of the compound (III) in the presence of sodium bicarbonate and immediately by the alkylation of the o-4-~~xy~~lidine (II) in a neutral medium. In the presence of pyridine the monoalkylation reaction yields only 75% since a side formation of the quaternary pyridine salt with (I) takes place. On the strength of this fact the dialkylation reaction in the presence of pyridine does not take place. It was shown that the alkylation products of o-4-~~xy~~lidine (II) with (I) are in the case of the reduction with hydrogen subjected to a hydrogenolysis in the presence of the palladium catalyst as well as in the presence of the skeleton nickel catalyst, in the last case best at 100° under pressure. 5 hitherto unknown compounds were obtained. There are 2 references, 1 of which is Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut (All-Union Scientific Research Institute of Vitamins)

SUBMITTED: March 6, 1958

Card 2/2

11.9.70¹ also 1583 2209
AUTHORS: Rudenko, M.G., Sobolev, Yu.P., Yatsenko, M.S., and
Starikova, L.V.

32529
S/065/61/000/012/002/005
E075/E135

TITLE: Synthesis and properties of esters of
arylstearic acids

PERIODICAL: Khimiya i tekhnologiya topliv i masel, no.12, 1961,
7-11

TEXT: Some esters of arylstearic acids were synthesized and
their properties investigated for the first time to ascertain the
feasibility of their use as synthetic lubricating oils. Phenyl,
o-xylyl and p-xylylstearic acids were obtained by condensing
commercial oleic acid with the respective hydrocarbons in the
presence of $AlCl_3$. The ratio of weights of the hydrocarbons to
that of oleic acid was 5:1, $AlCl_3$ and oleic acids were used in
equimolar quantities. The reaction was carried out at 80 °C for
5-6 hours. The reactions with naphthalene and diphenyl ether were
conducted in solution in trichlorobenzene. The acids were
purified by vacuum distillation. The physical constants of
Card 1/3

X

Synthesis and properties of esters...

32529
S/065/61/000/012/002/005
E075/E135

phenoxyphenylstearic and o-xylylstearic acids were different from those reported in the literature. The acids were esterified with methyl-, benzyl- and 2-ethylbenzyl alcohols. Almost all the esters solidify from -40 to -60 °C. Benzyl esters of naphthyl- and phenoxyphenylstearic acids solidify at -35 °C, whilst their methyl esters solidify at -40 and -50 °C respectively. Methyl ester of phenylstearic acid solidifies at -26 °C and the benzyl ester at -50 °C, although the viscosity of the latter ester is much higher than that of the methyl ester (19.32 and 11.38 cs at 50 °C respectively). The relatively low solidification temperatures of the esters are partly due to the fact that they are mixtures of different isomers. Viscosity of the esters increases with the carbon number of the alcoholic group and the molecular weight of the hydrocarbon substituent, with the exception of the esters of phenoxyphenylstearic acid which have lower viscosities than the naphthylstearic acid esters. The viscosities range from 11.4 to 51.1 cs at 50 °C and 3.7 to 11.9 cs at 100 °C. Thermal stability of the esters was investigated by passing air through the esters heated at 300 °C at the rate of

Card 2/ 3

X

32529

Synthesis and properties of esters.. S/065/61/000/012/002/005
E075/E135

5 ml/min for 10 hours. Methyl ester of phenoxyphenylstearic acid and benzyl ester of p-xylylstearic acid had the highest oxidation stability; however, the latter showed an excessive corrosivity towards steel. The two esters responded well to additive АЗНИИ-10 (AzNII-10), which lowered the evaporation losses and eliminated the corrosive tendencies. It is concluded that these esters could be used as lubricating oils at 300 °C with suitable additives.

There are 3 tables and 9 non-Soviet-bloc references. The four most recent English language references read as follows:

Ref.5: R.H. McKee, H.B. Faber, US Pat. 1972568 (1934).

Ref.6: A.J. Stirton, B.F. Peterson. Ind.Eng.Chem., v.31, 856, 1939.

Ref.7: W. Kimura, T. Omura, H. Taniguchi. Ber., v.71, 2686, 1938.

Ref.8: A.J. Stirton, B.B. Schaeffer, A.A. Stavitzke, J.K. Weil, C. Waldo. J.Amer. Oil Chem.Soc., v.25, 365, 1948.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR
(Institute of Petrochemical Synthesis, AS USSR)

Card 3/3

X